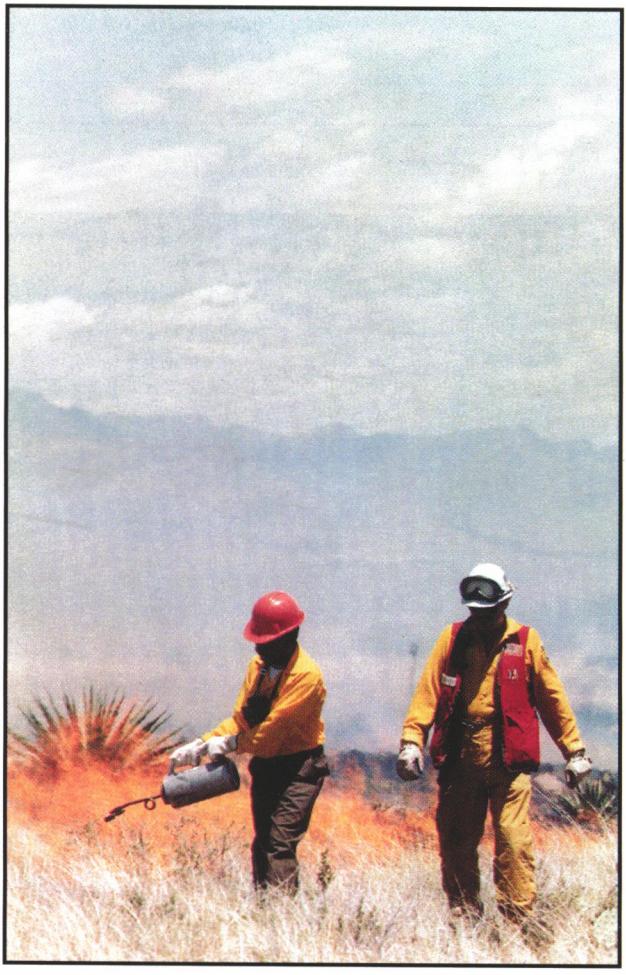
SD
11
.R3

Rx Fire!

As A Doctor Prescribes Medicine For An Illness, Forest Service Managers Sometimes Prescribe Fire To Improve The Health Of Our Southwestern Forests



An African forester studies prescribed fire burning techniques with a Forest Service fire management officer.

United States Department of Agriculture

PREPARED BY Forest Service

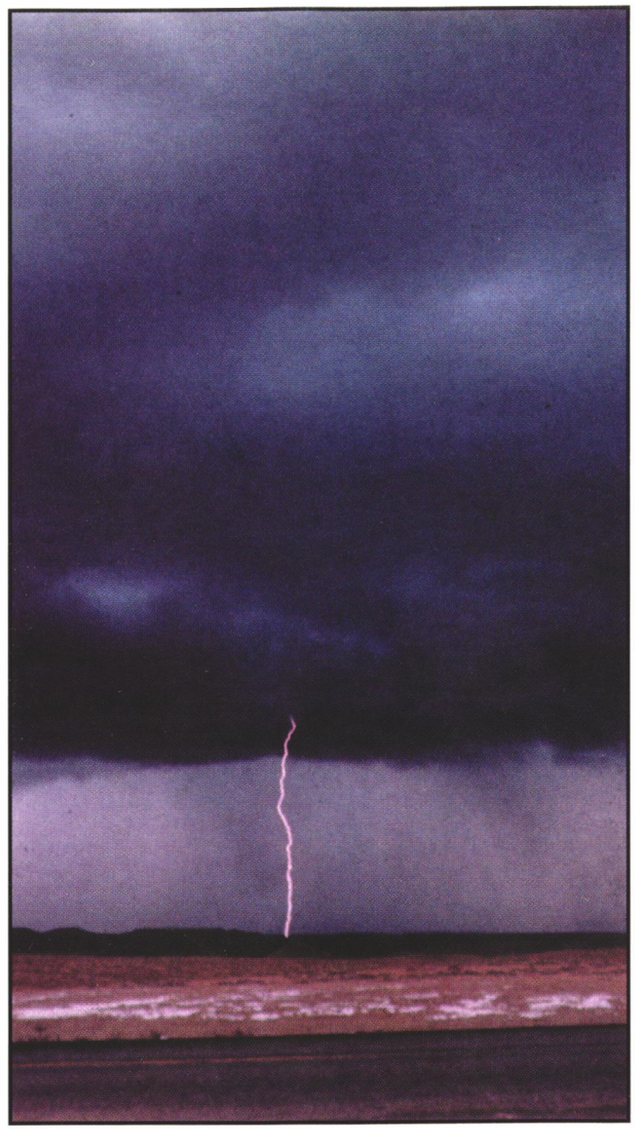
Southwestern Region

What Is Prescribed Fire?

Like doctors examining a patient, foresters, wildlife biologists, ecologists, and other specialists examine Southwestern forests and grasslands for unhealthy conditions. Fire is one remedy that may be prescribed if trees are too crowded; fire danger is increased by a build-up of dead material on the forest floor; or insects and disease have reached epidemic proportions.

However, just as doctors must be extremely careful in prescribing medicine, land managers only prescribe fire when conditions are right. Long before fires are ignited, prescriptions are developed for different types and locations of forests. Prescriptions describe the physical conditions the forest must meet before burning is allowed. Factors considered are the location of private property or structures, weather forecasts, wind speed, humidity, the amount of moisture contained in the wood that will be burned, and plant species types. Before fires are ignited, forest conditions must be measured to determine whether they meet the prescription for that type of forest. Burning begins only when conditions are right.

Weather conditions can change quickly, and fire must be closely monitored during the prescribed burn. If conditions "move out" of the established prescription (flames begin to move too rapidly or wind gusts begin to fan fire into the tops of trees), firefighters begin to suppress the fire so it will remain controlled.



What Is Prescribed NATURAL Fire?

Lightning-caused fires were a natural process in almost all Southwestern ecosystems. Fire-created openings in forests and grasslands provided diverse habitats for many kinds of plants and animals.

Today, many wildlands are surrounded by private lands, towns, and personal property, and lightning-caused fires cannot always be allowed to burn. However, in remote locations fires may be allowed to burn if weather conditions are right, and forest managers decide that the fire is within a predetermined "natural fire plan" for the area. These are called "prescribed natural fires." Unlike prescribed natural fires or prescribed fires, wildfires can be human or lightning-caused, but the fire occurs in the wrong place at the wrong time and without meeting a predetermined prescription. These fires can be devastating to forest plants and soils.

Fire: A Natural Process

Southwestern plants and animals have evolved with fire as a natural part of their life history. Because people have moved in close to grasslands and forests, we view fire as a threat instead of a natural process. When conditions are correct and specific management needs warrant change, forest managers allow fire to once again play an important role in forest and grassland health. However, human safety is always the first consideration whether fighting fires or using fire to restore a natural process.

Smokey Bear's Message

Preventing human-caused wildfire is still important—perhaps even more important than it was in the past! When Smokey's fire prevention messages began over fifty years ago, hundreds of thousands of acres of American forests were consumed by human-caused wildfires every year. In the last 50 years, Smokey's message helped reduce human-caused fires by 97%. However, without the periodic burning ignited by lightning-caused fires, many forests have tremendous accumulations of needles, branches, and other dead materials. Forests could experience catastrophic fires. Human-caused wildfires are seldom beneficial to ecosystems and often result in devastation.

Smoke and Fire

Many people with respiratory problems cannot tolerate smoke. Therefore, air quality is another important consideration when a prescribed fire is being planned. If the wind will drift smoke into a city, the burn may have to be postponed until the wind direction changes, and once a fire is burning, it may have to be put out if smoke lingers over a population center. The reduction of dead and dry material through prescribed fires can help prevent catastrophic forest fires that produce large volumes of smoke when wind directions are wrong.

A Word of Caution

Many people want to live next to a national forest. This can lead to very real problems. Wildfires, whether human or lightning-caused, are unpredictable and can indiscriminately burn through forests onto private land before being stopped. Homeowners should be aware of the precautions they need to take to protect their homes and property. If you would like more information about protecting your home from wildfires, please contact your nearest USDA Forest Service or State Forestry office.

Fire In Piñon-Juniper Ecosystems

Erosion from heavy use in a piñon-juniper forest.

Piñon-Juniper ecosystems are diverse and vary greatly throughout the Southwest. For thousands of years this ecosystem has been a popular place for people to live because it usually doesn't get too hot in the summer or cold in the winter, and food sources and firewood are plentiful.

How often and how intense fires burned in piñon-juniper is as complex as the ecosystem itself, but many fires once spread into this ecosystem from lower elevation grasslands. Forest meadow and grassland plant species are better adapted to withstanding periodic fires than forest trees are. However, many of today's piñon-juniper forests have been heavily used, and grasses needed to carry natural fires into piñon-juniper forests have been eaten by domestic animals and wildlife. Forest managers must be very careful when prescribing fire in this ecosystem because fire can further stress a heavily used forest. When stands of grass and wildflowers once again guard against erosion, fire can be allowed to play a role in forest health maintenance.

New grasses and reduced erosion—the forest is once again ready for fire to play a natural role in maintaining ecosystem health.

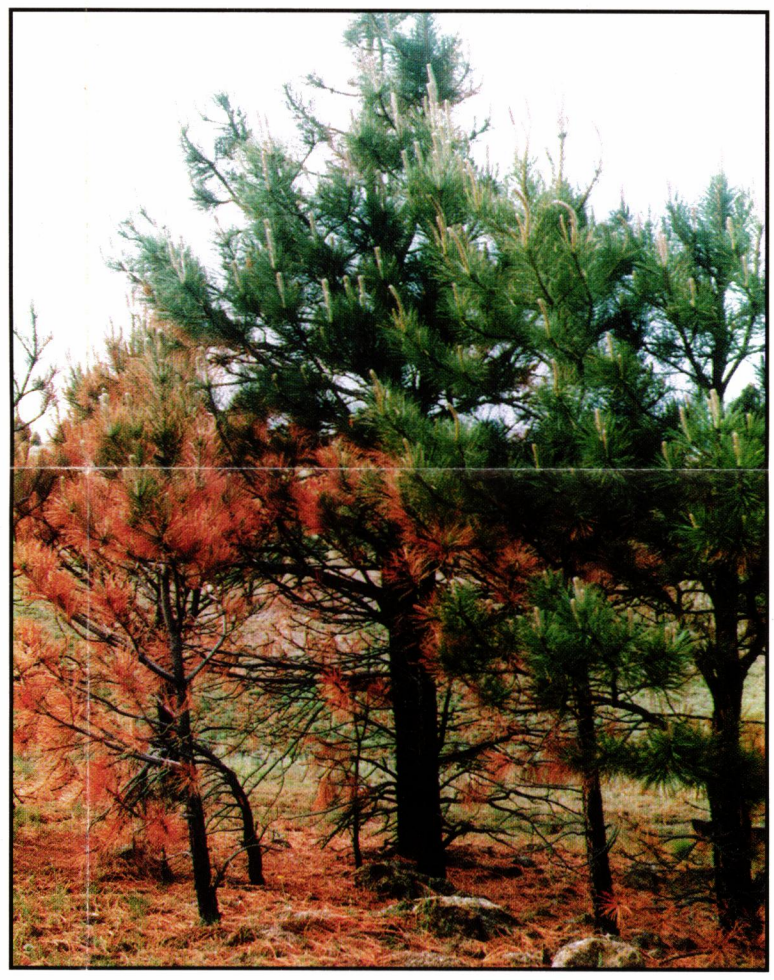
Fire In Ponderosa Pine Ecosystems

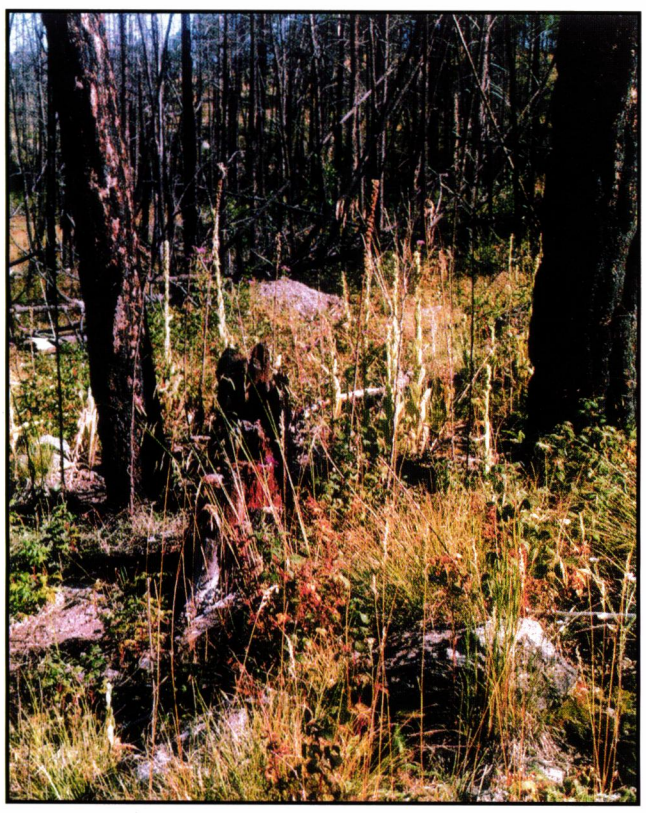
We are learning about the history of fire in Ponderosa pine by studying their tree rings and fire scars. We now know that fires often burn in this type of forest. For thousands of years, small lightning-caused fires moved through these forests. These fires burned along the ground, thinning out many smaller pines, consuming accumulated needles and debris, and leaving fertile ash that stimulated the growth of grasses and wildflowers.

Today, in forests that lack fire as a natural process, we often find dense Ponderosa pine forests with very little light reaching the forest floor. In other parts of the forest, groups of young pines are so crowded that few of them can be expected to grow into tall, mature trees. Fire may be used to create openings in the forest that allow sunlight to reach the forest floor and encourage wildflowers and other plants to grow, or fire may be used to thin out the thick groups of pines and allow fewer but healthier trees to grow 200 to 250 years old.

Immediate Right: Using fire to thin a dense thicket of young Ponderosa pines.

Far Right: A more open, sunlit forest that allows a greater variety of plants to grow. Increased plant diversity also provides more feed for wildlife.





An opening created in mixed conifers by a lightning-caused fire.

Fire stimulates new aspen growth.

Fire In Higher Elevation Ecosystems

Above 8,000 feet in our Southwestern mountains, we usually find mixed conifers (evergreens) and large and small groups of aspens. Periodic natural fires create openings in these forests that allow aspens, shrubs, grasses, and wildflowers to flourish in the sun. Aspen groves are important because of the diversity of plants and animals they help support. The location and pattern of openings in conifer forests gradually changes because of new fires and conifers crowding out aspen. Aspen are sometimes called "The Mother of the Forest" because they are often the first tree species to grow in areas of intense forest fires. Their cool shade creates an environment that allows new conifers to reestablish themselves in old burn areas. As fire moves through old aspens groves, it stimulates their root systems to sprout. New aspen groves or forests result.

The United States Department of Agriculture (USDA) Forest Service is a diverse organization committed to equal opportunity in employment and program delivery. USDA prohibits discrimination on the basis of race, color, national origin, sex, religion, age, disability, political affiliation and familial status. Persons believing they have been discriminated against should contact the Secretary, US Department of Agriculture, Washington, DC 20250, or call 202-720-7327 (voice) or 202-720-1127 (TDD).

Printed 11/94 on recycled paper